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Cross reactivity between gutta-percha and latex

12/21/2010

Q. I was consulted on a patient who has an immediate type allergy to latex; can she have dental work with gutta percha and is there a test for IgE mediated allergy to this material; your advice is greatly appreciated

A. Thank you for your recent inquiry.

As you can see from the abstracts copied below, there is no cross reaction between gutta-percha and latex. There, however, is potential cross reactivity between gutta-balata and latex. On occasion, gutta-balata is added to gutta-percha, and therefore you should make sure, in regards to the patient in question, that pure gutta-percha is used.

Unfortunately I was not able to find any in vitro tests for gutta-percha allergy.

Thank you again for your inquiry and we hope this response is helpful to you.

J Am Dent Assoc. 2002 Oct;133(10):1357-67.

Cross-reactivity between gutta-percha and natural rubber latex: assumptions vs. reality.

Hamann C, Rodgers PA, Alenius H, Halsey JF, Sullivan K.

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Abstract

BACKGROUND: Immunological cross-reactivity between gutta-percha and natural rubber latex, or NRL, has not been demonstrated clearly despite recent concerns and several suspected cases reported in the literature.

METHODS: The authors analyzed aqueous extracts of commercial gutta-percha points and raw gutta-percha samples for cross-reactivity to NRL by radioallergosorbent test, or RAST, inhibition; immunoblot inhibition; direct enzyme-linked immunosorbent assay, or ELISA; and ELISA inhibition using sera from NRL-allergic people as the source of anti-NRL immunoglobulin E, or IgE, antibodies. To confirm in vitro results, the authors conducted skin prick testing, or SPT, on a patient with type I NRL allergy using aqueous extracts from raw gutta-percha, ammoniated gutta-percha and gutta-percha points.

RESULTS: Aqueous extracts from commercial gutta-percha points did not cross-react to NRL in RAST inhibition or immunoblot inhibition, ELISA or ELISA inhibition assays.

However, three of 13 sera from subjects with type I NRL allergy exhibited IgE binding to raw gutta-percha extracts in direct ELISA. Moreover, in ELISA inhibition, the binding of IgE to raw gutta-percha extracts was inhibited in a dose-dependent manner by raw NRL and vice versa. SPT results from a subject with type I NRL allergy were positive for NRL and raw gutta-percha extracts but negative for gutta-percha point extracts.

CONCLUSIONS: The authors found no detectable cross-reactivity between NRL and commercial gutta-percha points. However, their ELISA and SPT results demonstrated that some allergenic cross-reactivity exists between raw gutta-percha and raw NRL.

CLINICAL IMPLICATIONS: Gutta-percha alone is not likely to induce symptoms in patients with type I NRL allergy. However, other materials used in obturating root canals may be irritating and potentially allergenic in patients with pre-existing allergies.

J Endod. 2001 Sep;27(9):584-7.

Cross-Reactivity studies of gutta-percha, gutta-balata, and natural rubber latex (Hevea

brasiliensis).

Costa GE, Johnson JD, Hamilton RG.

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Abstract

Gutta-percha and gutta-balata are derived from the *Paliquium gutta* and *Mimusops globosa* trees, respectively, that are in the same botanical family as the rubber tree *Hevea brasiliensis*. For this reason the potential for immunological cross-reactivity between the gutta-percha and gutta-balata used in endodontics and natural rubber latex (NRL) has been the subject of some controversy, because these products may be used in latex-allergic individuals. The objective of this study was to investigate the potential cross-reactivity between gutta-percha, gutta-balata, and NRL. Physiological extracts of seven commercially available gutta-percha products, raw gutta-percha, raw gutta-balata, and synthetic transpolyisoprene were each analyzed for cross-reactivity with NRL in a competitive radioallergosorbent test inhibition assay. No detectable cross-reactivity was observed with any of the raw or clinically used gutta-percha products. In contrast the raw gutta-balata released proteins that were cross-reactive with Hevea latex. We conclude that the absence of gutta-percha proteins that can react with Hevea latex-specific IgE antibody supports the minimal potential for commercially available gutta-percha to induce allergic symptoms in individuals sensitized to NRL. Because gutta-balata is sometimes added to commercial gutta-percha products caution should be exercised if products containing gutta-balata are used in endodontic care of latex-allergic individuals.

Dent Mater. 2007 Mar;23(3):380-4. Epub 2006 Mar 14.

The immuno cross-reactivity of gutta percha points.

Kang PB, Vogt K, Gruninger SE, Marshall M, Siew C, Meyer DM.

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Abstract

OBJECTIVE: The purpose of this study is to test the postulated immuno cross-reactivity between proteins derived from raw gutta percha (RGP), gutta percha point (GPP) and natural rubber latex (NRL).

METHODS: Antigenicity and cross-reactivity of proteins were determined by the FITkit (FITBiotech, Finland) and ELISA inhibition assays.

RESULTS: Antigenicity of proteins derived from RGP or GPP was not demonstrated. Except for NRL glove extracts, neither extracts from RGP or GPP were reactive in ELISA inhibition assay.

SIGNIFICANCE: There is no immunologic cross-reactivity in vitro between proteins derived from RGP or GPP, and from NRL gloves. Thus, therapeutic use of GPP is unlikely to initiate adverse immuno-reactivity in individuals previously sensitized to NRL proteins.

Sincerely,

Phil Lieberman, M.D.

Key Words: gutta-percha, gutta-balata, latex

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